Allowable Subject Matter

1. **Claims 1-9** are allowed.

The following is an examiner's statement of reasons for allowance:

The invention relates to a method of reducing an interference noise signal fraction in a microphone signal to improve the quality of speech signals which are fed to a speech recognition device or to a telecommunications device. One important application example from the telecommunications sector is hands-free devices, which nowadays by law must be used for making telephone calls in motor vehicles. With the aid of such hands-free devices, it is possible for the driver to communicate with a remote conversation partner without having to take his hands off the steering wheel and hence without taking his eyes off the road.

The closest prior art, Matsuo (US 6,317,501 B1) shows a microphone array apparatus to detect the position of a sound source, emphasize a target sound and to suppress noise. Matsuo discloses a method of reducing an interference noise signal fraction in a microphone signal (Fig. 8, signal from microphone 1-1) which contains the interference noise signal fraction coming from at least one interference noise source (Fig. 8, noise source 16) and a speech signal fraction coming from a speech signal source (Fig. 8, sound source 5), said method comprising the following steps:

reception of the microphone signal containing the interference noise signal fraction and the speech signal fraction (Fig. 8, signal from microphone 1-1),

in the case of just one interference noise reference signal (Fig. 8, n=2, signal from microphone 1-2), determination of an estimate of the interference noise signal

fraction from the interference noise reference signal (Fig. 8, adaptive filter 2-2) using a method of signal estimation theory (implicit, since the system uses adaptive filter).

in the case of more than one interference noise reference signal (Fig. 8, from speakers 1-1 to 1-n), determination of in each case one provisional estimate of the interference noise signal fraction (Fig. 8, output of filters 2-2 to 2-n) from each of the interference noise reference signals using a method of signal estimation theory and subsequent determination of the estimate of the interference noise signal fraction in the microphone signal by combining these provisional estimates of the interference noise signal fraction (Fig. 8, combiner 3 from filters 2-2 to 2-n), reduction of the interference noise signal fraction in the microphone signal by deducting the estimate of the interference noise signal fraction from the microphone signal (column 4 lines 25-49, column 5 lines 4-24).

However, Matsuo fails to disclose "... the reception of at least one interference noise reference signal is made by means of in each case one inversely operated loudspeaker, where the loudspeaker or loudspeakers are positioned such that the signal fraction coming from the interference noise sources in the respective interference noise reference signal is at least as high as the signal fraction coming from the speech signal source in this interference noise reference signal..."

This distinct feature has been added to the sole independent claim and renders it allowable.

Dependent claims 2-9 are allowable for the same reason.

Conclusion

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sonny TRINH whose telephone number is 571-272-7927. The examiner can normally be reached on Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward URBAN can be reached on 571-272-7899. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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/Sonny TRINH/
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